Reference No.: 81
Barite Hill/Nevada Goldfields
EPA ID No. SCN000407714

Project Note

Date: July 28, 2008	Project Number: TTEMI-05-003-0019

Name: Shanna Davis
Firm: Tetra Tech EM Inc.
Title: Environmental Scientist
Time: 1309

Signature: Shanna Davis

Subject: Documents obtained from the EPA On-Scene Coordinator Website

PROJECT NOTE SUMMARY

Attached are 12 pollution reports (POLREPs) for the Barite Hill property as well as a July 2008 Comparative Table for the Barite Hill Pit Lake. Both documents were obtained from the following website:

http://www.epaosc.net/site_profile.asp?site_id=2768

RESPONSE REQUIRED

(x) None ( ) Phone call ( ) Memo ( ) Letter ( ) Report

cc: File (x) Project Manager ( ) Principal Investigator ( ) Other (specify)

All POLREPs for this site

Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #1 - Initial POLREP
Removal Assessment in Progress

Printer Friendly Version

On-Scene Coordinator - Leo Francendese **1/28/2007**

- Removal Assessment **Pollution Report (POLREP) # 1**

Site Description

The Barite Hill/Nevada Goldfields site is located approximately 3 miles south of McCormick, South Carolina between US 378 and US 221 on the northern side of Road 30 in McCormick County, South Carolina. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site.

The site is located along a topographic high ridge area forming the headwaters of an unnamed tributary to Hawes Creek. The topography of the area consists of rolling hills with ridgelines at an elevation of about 500 feet. Within the site, the ridgeline comprising the site has a high point of about 510 feet and an average elevation of approximately 480 feet.
The permitted mine site totals 795.2 acres. Of this total, 659.7 acres are designated as buffer area (areas not disturbed beyond the pre-mine natural state); therefore the maximum disturbance area is 135.5 acres.

The facility used a cyanide solution in a heap leach process to extract gold from ore. There are 7 processing ponds onsite containing an unknown amount of free-liquids. Three large, multi-acre, waste rock piles contaminated with cyanide are left onsite. Each waste rock pile has the potential for producing acid. Storm water run on and runoff are not controlled at the site. The Main Pit from the mining operations remains. The pit contains approximately 100 million gallons of water with a pH of 2 ~ 2.2 and a high dissolved metal content. Seeps from the main pit containing acidic water with high dissolved metal content are being released to the northern unnamed tributaries of Hawes Creek which borders the pit.

As per a referral by the State of South Carolina, the EPA Region 4 Removal Program is currently conducting a Removal Assessment according to the National Contingency Plan.

Current Activities

A January 17th site walkthrough revealed the need for additional investigation and data gathering in order to make the Removal Assessment determination. Several representatives from the State were present and part of the debriefing. EPA Region 4 Site Assessment also attended the walkthrough as well as several national experts to advise the OSC on the situation.

A team comprised of scientific specialists from ORD and ERT are currently writing the coordinated workplan for the execution of the field sampling event. This event is being closely coordinated with the State.

Planned Removal Actions

Tentative plans for the field sampling event are scheduled for March 07.

Next Steps

In the event that a removal action is required, the OSC has already received a potentially responsible party investigative report. The EPA attorney is currently coordinating with the State on the status of these parties.

| web sites | regional web sites | profile | bulletins | images | documents | POLREPs | contacts | links |

All POLREPs for this site

Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #2 - March 26th Field Work
Date is Scheduled

Printer Friendly Version

On-Scene Coordinator - Leo Francendese
- Removal Action

2/10/2007
Pollution Report (POLREP) # 2

Site Description

The Barite Hill/Nevada Goldfields site is located approximately 3 miles south of McCormick, SC between US 378 and US 221 on the northern side of Road 30 in McCormick County, SC. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site.

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As per a referral by the State of South Carolina, the EPA Region 4 Removal Program is currently conducting a Removal Assessment according to the National Contingency Plan.

Current Activities

Bureau of Land Rec (BoR) has been added to the Removal Assessment Team and will be responsible for the inventory of the onsite areas of concern. ERT/LV continues to be the lead for workplans and execution of the field sampling event that is scheduled for the week of March 26th. ERT/Cinn is playing a supporting role to LV. ERT/Edison is the lead for the offsite ecoassessment. ORD continues to be responsible for evaluating contaminant loading to and from the site, particularly the acid mine pit. All participating parties are coordinating their site needs thru ERT/LV. The site evaluation is being coordinated with the State.

In addition, EPA Enforcement continues to closely coordinate their activities with the State of South Carolina.

All POLREPs for this site

Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #3 - May 7th Public Meeting and RSE Update

Printer Friendly Version

On-Scene Coordinator - Leo Francendese **5/11/2007**

- Removal Action **Pollution Report (POLREP) # 3**

Site Description

The Barite Hill/Nevada Goldfields site is located approximately 3 miles south of McCormick, SC between US 378 and US 221 on the northern side of Road 30 in McCormick County, SC. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site.

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As per a referral by the State of South Carolina, the EPA Region 4 Removal Program is currently conducting a Removal Assessment according to the National Contingency Plan.

Current Activities

The OSC, CIC and ATSDR rep attended a State sponsored community meeting on May 7th in McCormick. A general background on the site was given to the public by the State and EPA presented an updated pH gradient map. In addition, the public was informed that the EPA's assessment would be complete by the end of June 2007 and a recommendation would be made shortly afterward.

Next Steps

Awaiting ERT assessment report which includes the BOR inventory report. Scheduled completion by mid June 2007.

All POLREPs for this site

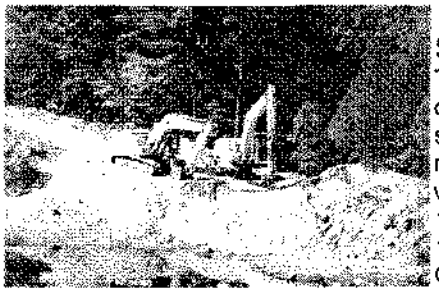
Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #4 - Removal Initiation ...
First 30 days

Printer Friendly Version

On-Scene Coordinator - Leo Francendese
Time-Critical - Removal Action
Start Date: 10/15/2007

11/11/2007
Pollution Report (POLREP) # 4



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As per a referral by the State of South Carolina, the EPA Region 4 Removal Program conducted a Removal Site Evaluation (RSE) according to the National Contingency Plan (NCP). During the RSE of March 2007, the OSC conducted an emergency response whose scope included the demolition of a furnace building and onsite neutralization of over 2000 lbs of varying strength acids and bases. As of 9/19/07, the Agency has approved an Action Memorandum to conduct a removal action. The removal action commenced on 10/15/07 and includes a Bureau of Reclamation designed cap for the 250,000 CYS of acid producing waste rock adjacent to the Acid Pit, Acid Pit neutralization and cyanide deactivation in one of the onsite process ponds.

The project is expected to take about 12 to 16 months to complete and is projected to cost approximately 4,000,000 dollars. Details concerning this action can be found in both the documents section and Pollution Reports (POLREPS) which are updated on a periodic basis.

Current Activities

LABOR AND EQUIPMENT MOBILIZATION

- 4 laborers/equipment operators
- 1 field clerk
- 1 response manager
- 1 front loader, 2 trackhoes, 1 hydraulic ram, 1 dozer

SITE SETUP ACTIVITIES

- Command Post trailer established.
- Temporary power provided via generator. Waiting power-line generated power.
- Security fencing around trailer established.
- Primary road access to site secured.
- CIC and SCDHEC reps conducted community updates on 11/8/07 distributing Fact Sheet #4. Waiting updated project signage.
- Health and Safety Plan initiated.

CONSTRUCTION ACTIVITIES

- Consolidated lime stockpile.
- Consolidated site piping and abandoned equipment.
- Salvaged abandoned engineering records.
- Relocated abandoned trailer to equipment pile. Waiting disposal.
- Created truck access road to borrow pit.
- Created truck access road to spillway.
- Established acid pit and borrow pit working perimeter access walking paths.
- Rough cut of 20 foot wide spillway in progress. BOR conducted preliminary spillway construction investigation during week of 11/6 thru 11/9.
- Demolition of exposed ridges within the Acid Pit waste rock piles using the trackhoe-mounted hydraulic ram in progress. BOR conducted preliminary investigation to evaluate conceptual design for the cap durng week of 11/6 thru 11/9.
- Located and coordinated local source (Georgia Pacific Wood Products) for donated topsoil and organic amendments. EPA currently working on transport vendors.

INVESTIGATION/EVALUATION ACTIVITIES IN SUPPORT OF BOR DESIGN

- BOR Work Plan for Reclamation Design submitted and approved.(re: documents section of this webpage)
- Conducted Acid Pit waste rock pH paste-tests.
- Conducted bench scale pH titration tests with accompanying metals analysis for the Acid Pit waters using several different lime sources.
- Attended SCDHEC sponsored lime vendor presentation meeting on 10/12/07. Selection process for lime source and applied execution in progress.
- Mapping the Acid Pit floor with ROVER technology in progress.
- Land survey (2 ft contours) of drainage area surrounding the Acid Pit in progress.

Next Steps

OSC and BOR design lead to attend presentation on select best available science capping technologies in Augusta on November 14th. Presentation is organized by the State with representation from Ridgeway Mine and Clemson University as the presenters.

Key Issues

High levels of hydrogen sulfide gas requiring SCBA were detected on the air monitoring equipment during an investigative effort in early October. These levels followed a significant rain event and subsequent warm, sunny morning. While similar conditions have not been detected since, health and safety protocols continue air monitoring.

All POLREPs for this site

Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #5 - South Waste Rock Pile Grading Begins

Printer Friendly Version

On-Scene Coordinator - Leo Francendese
Time-Critical - Removal Action
Start Date: 10/15/2007

12/2/2007
Pollution Report (POLREP) # 5

Site Description

The Barite Hill/Nevada Goldfields site is located approximately 3 miles south of McCormick, South Carolina between US 378 and US 221 on the northern side of Road 30 in McCormick County, South Carolina. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site.

The site is located along a topographic high ridge area forming the headwaters of an unnamed tributary to Hawes Creek. The topography of the area consists of rolling hills with ridgelines at an elevation of about 500 feet. Within the site, the ridgeline comprising the site has a high point of about 510 feet and an average elevation of approximately 480 feet.

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The facility used a cyanide solution in a heap leach process to extract gold from ore. There are 7 processing ponds and 1 sediment pond onsite. Three large, multi-acre waste rock piles exist in varying condition. Each waste rock pile has the potential for producing acid. Storm water run on and runoff are not controlled at the site. The Main Pit ("Acid Pit") from the mining operations remains. The 10 acre Acid Pit contains approximately 60,000,000 gallons of water with an average pH of 2 ~ 2.2 and a high dissolved metal content. Seeps from the Acid Pit containing acidic water with high dissolved metal content are being released to the northern unnamed tributaries of Hawes Creek which borders the pit at a rate of approximately 5 gpm.

As per a referral by the State of South Carolina, the EPA Region 4 Removal Program conducted a Removal Site Evaluation (RSE) according to the National Contingency Plan (NCP). During the RSE of March 2007, the OSC conducted an emergency response whose scope included the demolition of a furnace building and onsite neutralization of over 2000 lbs of varying strength acids and bases. As of 9/19/07, the Agency has approved an Action Memorandum to conduct a removal action. The removal action commenced on 10/15/07 and includes a Bureau of Reclamation designed cap for the 250,000 CYS of acid producing waste rock adjacent to the Acid Pit, Acid Pit neutralization and cyanide deactivation in one of the onsite process ponds.

The project is expected to take about 12 to 16 months to complete and is projected to cost approximately 4,000,000 dollars. Details concerning this action can be found in both the documents section and Pollution Reports (POLREPS) which are updated on a periodic basis.

Current Activities

CONSTRUCTION ACTIVITIES

- Disposed of abandoned trailer and various mining equipment debris.
- Demolition of exposed ridges along the centerline of the Waste Rock Piles using the trackhoe-mounted hydraulic ram completed.
- Completed rough cut of spillway. Awaiting BOR final design.
- Successful completion of pilot using carbide lime slaker and hydrospray method.
- Began grading of the South Waste Rock Pile on the 29th.
- Deforestation and grubbing of the eastern ridge was begun and is 65% complete. The area will be used as part of the clay borrow for capping.

INVESTIGATION/EVALUATION ACTIVITIES IN SUPPORT OF BOR DESIGN

- BOR Reclamation Design in progress.
- Completed 2' land survey of contours within the Acid Pit watershed.
- Complete sonar mapping of the Acid Pit using ROVER technology.
- Designing a centrally located Acid Pit monitoring station in coordination with SCDHEC and assisted by Clemson University to document the baseline, provide performance data during the removal activities, and compile data for future water quality.
- Meet with SCDHEC and Clemson Univ on the 14th in Augusta. BOR was also present as well as industry representatives. Primary topic discussed was the effects and methods of carbon loading to mining pits.

Planned Removal Actions

Contractor will demobe from the 15th of December to the 2nd of January for the holidays.

Currently planning to deactivate remaining cyanides upon remobilization in addition to continuing to execute the as built BOR Reclamation Design.

| web sites | regional web sites | profile | bulletins | images | documents | POLREPs | contacts | links |

All POLREPs for this site

Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #6 - Remobe/Setup for Acid Pit Neutralization-Treatment/Cont Grading

Printer Friendly Version

On-Scene Coordinator - Leo Francendese
Time-Critical - Removal Action
Start Date: 10/15/2007

1/25/2008
Pollution Report (POLREP) # 6

Site Description

The Barite Hill/Nevada Goldfields site is located approximately 3 miles south of McCormick, South Carolina between US 378 and US 221 on the northern side of Road 30 in McCormick County, South Carolina. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site.

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The project is expected to take about 12 to 16 months to complete and is projected to cost approximately 4,000,000 dollars. Details concerning this action can be found in both the documents section and Pollution Reports (POLREPS) which are updated on a periodic basis.

Current Activities

CONSTRUCTION ACTIVITIES

- Approximately 1500 tons of carbide lime has been purchased and delivered for onsite Acid Pit neutralization. The system for application of the carbide lime is currently being setup expected to be up and running by next week.
- Patented carbon loading treatment methodology has been selected as part of the Acid Pit treatment strategy. The initial loading of aged wood chips (approx 500 tons) from the nearby McCormick sawmill has begun. The treatment will continue simultaneously with the neutralization. Ph results indicate that the Acid Pit waters have risen from 1.9 to 2.8. In addition, the receiving creek pH has risen from 2.0 to 3.5.
- Deforestation and grubbing of the eastern ridge and borrow pit edge is 100% complete. The area will be used as part of the clay borrow for capping.
- Initial grading of the north and south waste rock pile continues on an as built basis in coordination with the BOR working design efforts.
- EPA's "Old" Mobile Command Post (MCP) was deployed to the site to augment working space.
- Deforestation and grubbing for powerlines has been completed and poles will be installed to run power to the site. Estimated to be completed by the end of January.

INVESTIGATION/EVALUATION ACTIVITIES IN SUPPORT OF BOR DESIGN

- BOR Reclamation Design in progress. BOR submitted final grading plans for the North Waste Rock Pile as of the 25th.
- Completed 2'land survey of contours within the Acid Pit watershed and the watershed hydrology evaluation has been completed by BOR.
- Completed sonar mapping of the Acid Pit using ROVER technology.
- Designed and deployed a centrally located Acid Pit monitoring station in coordination with SCDHEC and assisted by Clemson University to document the baseline, provide performance data during the removal activities, and compile data for future water quality.
- Samples were taken of the pregnant pond sump for scoping of to be executed cyanide deactivation. Results pending.
- Onsite weatherstation was deployed and is recorded via radio frequency collection.

All POLREPs for this site

Barite Hill Nevada Goldfields

Printer Friendly Version

McCormick , SC - EPA Region IV
POLREP #7 -
Neutralization/Treatment/Grading Continues

On-Scene Coordinator - Leo Francendese
Time-Critical - Removal Action
Start Date: 10/15/2007

3/28/2008
Pollution Report (POLREP) # 7

Site Description

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The project is expected to take about 12 to 16 months to complete and is projected to cost approximately 4,000,000 dollars. Details concerning this action can be found in both the documents section and Pollution Reports (POLREPS) which are updated on a periodic basis.

Current Activities

CONSTRUCTION ACTIVITIES

- Carbide lime neutralization of the Acid Pit water began on February 4th, 2008. To date approximately 1177 tons of carbide lime have been mixed into the pit waters at a 4% mixture rate in an aerated batched application system developed and constructed by the prime contractor.

- Patented carbon loading treatment methodology continued as part of the Acid Pit treatment strategy. The treatment will continue simultaneously with the neutralization. To date, approximately 727 tons of Georgia Pacific provided, aged-wood chips and 375 tons of molasses have been carbon loaded into the Acid Pit.
- The final phase of carbon loading (methanol addition) is awaiting. Lime neutralization is proceeding accordingly with the relative surface fluctuating between pH 6.5 and 7 and the subsurface gradually rising with a current pH of 4.6 to 4.8.
- Grading of the north and south waste rock piles continues on an as built basis in coordination with the BOR working design efforts to finalize grading plan and conduct field verified calculations. Grading on the south waste rock pile is 95% complete. Grading on the north waste rock pile is 75% complete.

INVESTIGATION/EVALUATION ACTIVITIES IN SUPPORT OF BOR DESIGN

- BOR Reclamation Design in progress. BOR submitted 100% complete grading plans for the south waste rock pile as of the beginning of March. Plans have been submitted to the SCDHEC for review and comment. No substantial objections have been raised to date. BOR onsite the week of March 25th.
- Flood hydrology calculations were completed for the mine pit watershed. Spillway design calculations are 50% complete.
- Samples were taken of the pregnant pond sump for scoping of the to be executed cyanide deactivation. Additional samples were taken to verify the cyanide levels.
- Georgia Pacific delivered approx 20 tons of material to be used as topsoil. Samples were taken for carbon and nitrogen analysis in order to determine suitability of the material for revegetation.
- Satellite recorded mini-trolls continue to operate in the Acid Pit at 5' and 40' measuring parameters such as DO, ORP, pH, temperature and turbidity.
- Please see www.isi-data.com for updates at 1:00 PM and 7:00 AM. Login:jharrington Pass: jharrington. Weather station continues to monitor and record daily work conditions.

MEETINGS/PUBLIC AFFAIRS

- State representatives from the local SCDHEC district were onsite March 27th in order to be briefed by the OSC concerning progress and as built remediation plans.

All POLREPs for this site

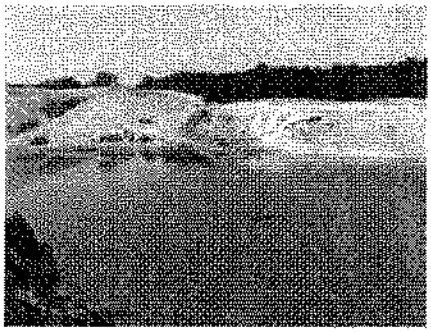
Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #8 - Grading/Capping/Pit Treatment Continues

Printer Friendly Version

On-Scene Coordinator - Leo Francendese
Time-Critical - Removal Action
Start Date: 10/15/2007

4/19/2008
Pollution Report (POLREP) # 8



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The site is located along a topographic high ridge area forming the headwaters of an unnamed tributary to Hawes Creek. The topography of the area consists of rolling hills with ridgelines at an elevation of about 500 feet. Within the site, the ridgeline comprising the site has a high point of about 510 feet and an average elevation of approximately 480 feet.

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The facility used a cyanide solution in a heap leach process to extract gold from ore. There are 7 processing ponds and 1 sediment pond onsite. Three large, multi-acre waste rock piles exist in varying condition. Each waste rock pile has the potential for producing acid. Storm water run on and runoff are not controlled at the site. The Main Pit ("Acid Pit") from the mining operations remains. The 10 acre Acid Pit contains approximately 60,000,000 gallons of water with an average pH of 2 ~ 2.2 and a high dissolved metal content. Seeps from the Acid Pit containing acidic water with high dissolved metal content are being released to the northern unnamed tributaries of Hawes Creek which borders the pit at a rate of approximately 5 gpm.

As per a referral by the State of South Carolina, the EPA Region 4 Removal Program conducted a Removal Site Evaluation (RSE) according to the National Contingency Plan (NCP). During the RSE of March 2007, the OSC conducted an emergency response whose scope included the demolition of a furnace building and onsite neutralization of over 2000 lbs of varying strength acids and bases. As of 9/19/07, the Agency has approved an Action Memorandum to conduct a removal action. The removal action commenced on 10/15/07 and includes a Bureau of Reclamation designed cap for the 250,000 CYS of acid producing waste rock adjacent to the Acid Pit, Acid Pit neutralization and cyanide deactivation in one of the onsite process ponds.

The project is expected to take about 12 to 16 months to complete and is projected to cost approximately 4,000,000 dollars. Details concerning this action can be found in both the documents section and Pollution Reports (POLREPS) which are updated on a periodic basis.

Current Activities

CONSTRUCTION ACTIVITIES

- Carbide lime neutralization of the Acid Pit water began on February 4th, 2008. To date approximately 1710 tons of carbide lime have been mixed into the pit waters at a 4% mixture rate in an aerated batched application system developed and constructed by the prime contractor.
- Patented carbon loading treatment methodology continued as part of the Acid Pit treatment strategy. The

treatment will continue simultaneously with the neutralization. To date, approximately 1136 tons of Georgia Pacific provided, aged-wood chips, 375 tons of molasses and 21 tons of methanol have been carbon loaded into the Acid Pit.

- Carbide lime neutralization is proceeding accordingly. The Acid Pit turned over this week and provided adequate blending of the surface and subsurface zones while sustaining an oxidation reduction potential (orp) conducive to the proliferation of sulfate reduing bacteria and an overall Acid Pit pH of approx 6. Data as of 3-13-08 indicate an 80 to 99% reduction in zinc, aluminum and copper. Additional water quality results are pending.
- Grading of the south waste rock pile is complete and the initial layer of saprolite has been laid in accordance with BOR plans. The carbide lime treatment system was moved to allow final grading of the north waste rock pile.
- As part of the BOR reclamation design, two wells upgradient of the Acid Pit (near the access road) were drilled to explore an additional source of total watershed water to the Acid Pit. The current design surface drainage watershed is approx 20 acres. These wells are intended to serve as a backup water source for maintaining a subaqueous cap on residual pyritic material in the event of future droughts and to serve potential future irrigation needs for vegetative cap growth. The per well yields are approx 15 gal/min.
- EPA warehouse support contracts were onsite 4-18-08 to repair onsite weather station and relocate it to nearby Acid Pit eastern rim ridge.

INVESTIGATION/EVALUATION ACTIVITIES IN SUPPORT OF BOR DESIGN

- BOR Reclamation Design in progress. BOR submitted 100% complete grading plans for the south waste rock pile as of the beginning of March. Plans have been submitted to the SCDHEC for review and comment. No substantial objections have been raised to date.
- Flood hydrology calculations were completed for the mine pit watershed. Spillway design calculations are 80% complete.
- Samples were taken of the pregnant pond sump for scoping of the to be executed cyanide deactivation. Additional samples were taken to verify the cyanide levels.
- Georgia Pacific delivered approx 20 tons of material to be used as topsoil. Results are pending for carbon and nitrogen analysis in order to determine suitability of the material for revegetation.
- Satellite recorded mini-trolls continue to operate in the Acid Pit at 5' and 40' measuring parameters such as DO, ORP, pH, temperature and turbidity.
- Please see www.isi-data.com for updates at 1:00 PM and 7:00 AM. Login:jharrington Pass: jharrington.
- Weather station continues to monitor and record daily work conditions.

MEETINGS/PUBLIC AFFAIRS

- BOR visited the site on 4-15-08 to discuss as built spillway designs and conduct field surveillance of the proposed water level.
- SCDHEC representatives were onsite 4-16-08 to survey the progress and coordinate with OSC. The State continues to be satisfied with the pace, design and success of the project. Additionally, the State has been contacted by a Canadian company interested in future land use. As of 4-17-08, SCDHEC has contacted Region 4's Land Use Initiative Team and the OSC will coordinate with them as this proposal progresses.
- Georgia Pacific representatives were also onsite 4-16-08 to discuss pending delivery of material to be used as the base for topsoil to the cap.

All POLREPs for this site

Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #9 - Grading/Neutralization Complete/Capping Begins/Annual Mining Conference Recognition

Printer Friendly Version

On-Scene Coordinator - Leo Francendese

Time-Critical - Removal Action

Start Date: 10/15/2007

5/2/2008

Pollution Report (POLREP) # 9

Site Description

The Barite Hill/Nevada Goldfields site is located approximately 3 miles south of McCormick, South Carolina between US 378 and US 221 on the northern side of Road 30 in McCormick County, South Carolina. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site.

The site is located along a topographic high ridge area forming the headwaters of an unnamed tributary to Hawes Creek. The topography of the area consists of rolling hills with ridgelines at an elevation of about 500 feet. Within the site, the ridgeline comprising the site has a high point of about 510 feet and an average elevation of approximately 480 feet.

The permitted mine site totals 795.2 acres. Of this total, 659.7 acres are designated as buffer area (areas not disturbed beyond the pre-mine natural state); therefore the maximum disturbance area is 135.5 acres.

The facility used a cyanide solution in a heap leach process to extract gold from ore. There are 7 processing ponds and 1 sediment pond onsite. Three large, multi-acre waste rock piles exist in varying condition. Each waste rock pile has the potential for producing acid. Storm water run on and runoff are not controlled at the site. The Main Pit ("Acid Pit") from the mining operations remains. The 10 acre Acid Pit contains approximately 60,000,000 gallons of water with an average pH of 2 ~ 2.2 and a high dissolved metal content. Seeps from the Acid Pit containing acidic water with high dissolved metal content are being released to the northern unnamed tributaries of Hawes Creek which borders the pit at a rate of approximately 5 gpm.

As per a referral by the State of South Carolina, the EPA Region 4 Removal Program conducted a Removal Site Evaluation (RSE) according to the National Contingency Plan (NCP). During the RSE of March 2007, the OSC conducted an emergency response whose scope included the demolition of a furnace building and onsite neutralization of over 2000 lbs of varying strength acids and bases. As of 9/19/07, the Agency has approved an Action Memorandum to conduct a removal action. The removal action commenced on 10/15/07 and includes a Bureau of Reclamation designed cap for the 250,000 CYS of acid producing waste rock adjacent to the Acid Pit, Acid Pit neutralization and cyanide deactivation in one of the onsite process ponds.

The project is expected to take about 12 to 16 months to complete and is projected to cost approximately 4,000,000 dollars. Details concerning this action can be found in both the documents section and Pollution Reports (POLREPS) which are updated on a periodic basis.

Current Activities

CONSTRUCTION ACTIVITIES

- Carbide lime neutralization of the Acid Pit water began on February 4th, 2008. The operation is complete and equipment is being deconned. Approximately 1858 tons of carbide lime were mixed into the pit waters at a 4% mixture rate in an aerated batched application system developed and constructed by the prime contractor.

- Patented carbon loading treatment methodology continued as part of the Acid Pit treatment strategy. This application part of this treatment is nearly complete as well with monitorng and sampling of results pending. To date, approximately 1281 tons of Georgia Pacific provided, aged-wood chips, 375 tons of molasses and 21 tons of methanol have been carbon loaded into the Acid Pit.
- The Acid Pit is currently maintaining negative orp conducive to the growth of sulfate reducing bacteria and also maintaining a pH between 7 and 7.5.
- Grading of both waste rock piles has been completed and the layering and grading of site sourced clay has begun following the BOR design.
- Georgia Pacific delivered approx 1500 CY of donated material to be used as topsoil. Results are pending for carbon and nitrogen analysis in order to determine suitability of the material for revegetation.

INVESTIGATION/EVALUATION ACTIVITIES IN SUPPORT OF BOR DESIGN

- BOR Spillway design calculations are 80% complete.
- Satellite recorded mini-trolls continue to operate in the Acid Pit at 5' and 40' measuring parameters such as DO, ORP, pH, temperature and turbidity.
- Please see www.isi-data.com for updates at 1:00 PM and 7:00 AM. Login:jharrington Pass: jharrington.
- Weather station continues to monitor and record daily work conditions.

MEETINGS/PUBLIC AFFAIRS

- The SCDHEC representative was onsite 4-30-08 and met with R4 Removal Program management to survey the progress and coordinate with OSC. The State continues to be satisfied with the pace, design and success of the project. Additional discussion took place regarding the potential for a US based mining/restoration company to pursue taking on post removal operations and maintenance.
- BOR presented the project on April 22 at the EPA sponsored 16th Annual Mine Design, Operations, and Closure Conference held in Butte, Montana. The project was received as a model for restoration of an acid mine pit. The simultaneous addition of carbon and lime to the acidic pit lake, which resulted in formation of a thin layer of iron sulfide sludge, was seen to be an important advancement in the practice of mine reclamation.

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All POLREPs for this site

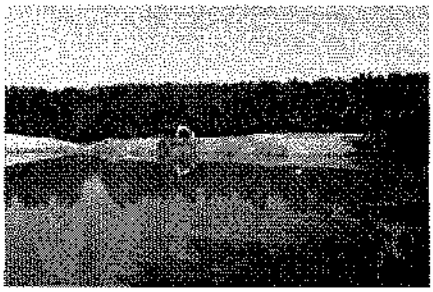
Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #10 - Capping/Pit Treatment/ Water Quality Improvements Continue

Printer Friendly Version

On-Scene Coordinator - Leo Francendese
Time-Critical - Removal Action
Start Date: 10/15/2007

5/24/2008
Pollution Report (POLREP) # 10



Site Description

The Barite Hill/Nevada Goldfields site is located approximately 3 miles south of McCormick, South Carolina between US 378 and US 221 on the northern side of Road 30 in McCormick County, South Carolina. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site.

The site is located along a topographic high ridge area forming the headwaters of an unnamed tributary to Hawes Creek. The topography of the area consists of rolling hills with ridgelines at an elevation of about 500 feet. Within the site, the ridgeline comprising the site has a high point of about 510 feet and an average elevation of approximately 480 feet.

The permitted mine site totals 795.2 acres. Of this total, 659.7 acres are designated as buffer area (areas not disturbed beyond the pre-mine natural state); therefore the maximum disturbance area is 135.5 acres.

The facility used a cyanide solution in a heap leach process to extract gold from ore. There are 7 processing ponds and 1 sediment pond onsite. Three large, multi-acre waste rock piles exist in varying condition. Each waste rock pile has the potential for producing acid. Storm water run on and runoff are not controlled at the site. The Main Pit ("Acid Pit") from the mining operations remains. The 10 acre Acid Pit contains approximately 60,000,000 gallons of water with an average pH of 2 ~ 2.2 and a high dissolved metal content. Seeps from the Acid Pit containing acidic water with high dissolved metal content are being released to the northern unnamed tributaries of Hawes Creek which borders the pit at a rate of approximately 5 gpm.

As per a referral by the State of South Carolina, the EPA Region 4 Removal Program conducted a Removal Site Evaluation (RSE) according to the National Contingency Plan (NCP). During the RSE of March 2007, the OSC conducted an emergency response whose scope included the demolition of a furnace building and onsite neutralization of over 2000 lbs of varying strength acids and bases. As of 9/19/07, the Agency has approved an Action Memorandum to conduct a removal action. The removal action commenced on 10/15/07 and includes a Bureau of Reclamation designed cap for the 250,000 CYS of acid producing waste rock adjacent to the Acid Pit, Acid Pit neutralization and cyanide deactivation in one of the onsite process ponds.

The project is expected to take about 12 to 16 months to complete and is projected to cost approximately 4,000,000 dollars. Details concerning this action can be found in both the documents section and Pollution Reports (POLREPS) which are updated on a periodic basis.

Current Activities

CONSTRUCTION ACTIVITIES

- Patented carbon loading treatment continued as part of the Acid Pit treatment strategy. An additional load of 24 tons of specifically blended molasses was applied on the 21st (targeted to the deeper layers of the lake) as well as a tanker truck of 23 tons of sodium hydroxide focused on the upper levels of the pit lake.

- Total additions to the Acid Pit include:

approximately 400 tons of molasses blends,
21 tons of methanol,
1,300 tons of fresh and aged woodchips,
23 tons of sodium hydroxide,
1,860 tons of carbide lime (hydrated).

- Analytical results (dissolved) from the Acid Pit confirm the following at the 5 foot depth within the lake:

Cu reduced from 300 ppm to < 0.02 ppm
Al reduced from 260 ppm to ND
As reduced from 0.27 ppm to ND
Zn reduced from 40 ppm to < 1.0 ppm
Fe reduced from 1,150 ppm to < 150 ppm.

- Additionally, the seep water quality from the Acid Pit is improving, particularly for aluminum, copper, and lead. Notably copper has been reduced by 82%, from 66 mg/L to 12.2 mg/L, indicating that removal of soluble copper from the Acid Pit water column has begun to show up as improved down-gradient water quality. Modeling indicates that it is likely that improvements to the seep water quality could lag the improvements in the pit water quality by as much as 100 days due to sorbed contaminants contained in the porosity of the seepage zones.
- The Acid Pit retains ORP conducive to bacterial growth, and exhibits signs of ongoing metabolism as evidenced by visible carbon dioxide bubbling. Analytical results indicate that sufficient concentrations of soluble organic carbon (TOC) has been provided and remains in the water column to drive complete metal reduction of the existing dissolved metals and additionally a significant portion of the reducible sediments (FeOOH). In addition ferric (the acid producing variety of iron) is ND and the remaining iron exists in the ferrous state as bacteria continue to reduce and convert the remaining iron to FeS (iron monosulfide) and FeCO3 (iron carbonate) which is being formed as a dense, non-reversible sediment at the bottom of the Acid Pit. Caustic soda was added to assist in the maintenance of soluble alkalinity at sufficient concentrations to buffer against minor and declining acid inputs. The pH continues to retain an approx average of 6.0-6.5. Modeling of the potential for remaining acid inputs is being conducted to determine the appropriate level of soluble alkalinity to target in the lake water. Large amounts of insoluble calcium-based alkalinity has been provided as a continual source of alkalinity on the pit lake bottom, which with sufficient soluble sodium-based alkalinity can be re-dissolved from the sediment layer to replenish any consumption of near-surface alkalinity that may occur from transient acid inputs.
- Excavation/transport and grading of site sourced clay to the former north and south waste rock piles continue according to the BOR design.
- As per SCDHEC request, the pyritic cliff face to the north of the constructed spillway has been graded and is being capped. The rock was loose enough to grade without blasting and will be capped with available on-site saprolite, clay and growth media.
- Approximately 1500 tons of rip rap have been delivered to the site for use in cap construction.
- To date, Georgia Pacific delivered approx 1500 CY of donated material to be used as topsoil. GP has agreed to screen the material before further delivery at no cost to the project. Carbon and nitrogen analysis has been completed and amounts of nitrogen fertilizer amendment are being formulated to create a suitable carbon to nitrogen ratio for revegetation requirements.
- SCDHEC is currently working on submitting suitable vegetative alternatives for the cap.

INVESTIGATION/EVALUATION ACTIVITIES IN SUPPORT OF BOR DESIGN

- BOR Spillway design calculations are 90% complete.
- Satellite recorded mini-trolls continue to operate in the Acid Pit at 5' and 40' measuring parameters such as DO, ORP, pH, temperature and turbidity.
- Please see www.isi-data.com for updates 4 times a day. Login:jharrington Pass: jharrington.
- Weather station continues to monitor and record daily work conditions.

MEETINGS/PUBLIC AFFAIRS

- SCDHEC representatives were onsite 5-21-08 to survey the progress. The State continues to be satisfied with

the pace, design and success of the project.

- Discussions continue regarding the potential for a US based mining/restoration company to pursue taking on post removal operations and maintenance.
- The EPA R4 HRS Site Assessment coordinator was onsite as well on the 21st conducting a site walk-through.
- On 5-9-08, BOR lead designer and the OSC met in Atlanta with the EPA R4 RPM to coordinate as requested monitoring wells for the cap. The Remedial Program will provide funding for design and installation.
- Several large, museum quality pieces of barite crystal that were unearthed during the grading were donated to the University of South Carolina and the State Museum. Clemson University has also been contacted.

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All POLREPs for this site

Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #11 - Capping Progresses/Acid Pit Water Quality Continues to Improve

Printer Friendly Version

On-Scene Coordinator - Leo Francendese
Time-Critical - Removal Action
Start Date: 10/15/2007

6/12/2008
Pollution Report (POLREP) # 11

Site Description

The Barite Hill/Nevada Goldfields site is located approximately 3 miles south of McCormick, South Carolina between US 378 and US 221 on the northern side of Road 30 in McCormick County, South Carolina. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site.

The site is located along a topographic high ridge area forming the headwaters of an unnamed tributary to Hawes Creek. The topography of the area consists of rolling hills with ridgelines at an elevation of about 500 feet. Within the site, the ridgeline comprising the site has a high point of about 510 feet and an average elevation of approximately 480 feet.

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The project is expected to take about 12 to 16 months to complete and is projected to cost approximately 4,000,000 dollars. Details concerning this action can be found in both the documents section and Pollution Reports (POLREPS) which are updated on a periodic basis.

Current Activities

CONSTRUCTION ACTIVITIES

- The former Acid Pit retains oxidation reduction potential(ORP) conducive to bacterial growth, and exhibits signs of ongoing metabolism as evidenced by visible carbon dioxide off gasing. Analytical results indicate that sufficient concentrations of soluble total organic carbon (TOC) has been provided and remains in the water

column to drive complete metal reduction of the existing dissolved metals and additionally a significant portion of the reducible sediments. In addition ferric, the acid producing variety of iron is non-detect and the remaining iron exists in the ferrous state as bacteria continue to reduce and convert the remaining iron to FeS (iron monosulfide) and FeCO3 (iron carbonate) which is being formed as a dense, non-reversible sediment at the bottom of the former Acid Pit. The pH is maintaining an approx average of 5.5. Please see the Interim Pit Lake Treatment Report in the documents section of this website for further detail. https://www.epaosc.net/sites/2768/files/interim%20report%20on%20barite%20hill%20neutralization%20and%20treatment.doc

- Additional evidence of improving water quality has been observed with the arrival of 2 adult turtles, numerous frogs in the receiving seep creek and an increasing abundance of dragonflies and water striders in and around the former Acid Pit.
- Excavation/transport and grading of site sourced clay to the former north and south waste rock piles continues according to the Bureau of Reclamation (BOR) design. Details of this design can be found in the documents section of this webpage.
- Approximately 1500 tons of rip rap have been delivered to the site for use in cap erosion control feature construction with approx 30 percent of the cap-former acid pit shoreline interface armored.
- To date, Georgia Pacific delivered approx 1500 cubic yards (CYS) of donated material to be used as topsoil. After technical consult with the South Carolina Department of Environmental Compliance(SCDHEC) an initial target soil blend of 40% organic and 60% clay/sand blend will be generated using available onsite materials. Carbon and nitrogen analysis indicate a current 60:1 ratio in the organic material. Further refinements in the topsoil blend are under consideration in consult with SCDHEC.
- SCDHEC is currently working on submitting suitable vegetative alternatives for the cap.

INVESTIGATION/EVALUATION ACTIVITIES IN SUPPORT OF BOR DESIGN

- BOR Spillway design calculations are 100% complete.
- Satellite recorded mini-trolls continue to operate in the Acid Pit at 5' and 40' measuring parameters such as DO, ORP, pH, temperature and turbidity.
- Please see www.isi-data.com for updates 4 times a day. Login:jharrington Pass: jharrington.
- Weather station continues to monitor and record daily work conditions.

MEETINGS/PUBLIC AFFAIRS

- SCDHEC representatives were onsite 5-5-08 to survey the progress. The State continues to be satisfied with the pace, design and success of the project.
- Discussions continue regarding the potential for a US based mining/restoration company to pursue taking on post removal operations and maintenance.
- Representatives from Clemson Geology Museum and SC State Museum were onsite to evaluate mineral specimens for future placement in addition to the ones already received.
- EPA OSC has coordinated with HRS Site Assessment request for additional onsite records evaluation. Onsite date of records review is pending.
- EPA CIC was on site 6-11-08 to update fact sheets and conduct preliminary public outreach concerning potential for the local museum to receive mineral specimens of interest.
- EPA OSC is in coordinated efforts with R4 Remedial Program to construct monitoring systems for the functioning of the cap. BOR is acting as liason for this endeavor.

All POLREPs for this site

Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #11 - Capping Progresses/Acid Pit Water Quality Continues to Improve

Printer Friendly Version

On-Scene Coordinator - Leo Francendese
Time-Critical - Removal Action
Start Date: 10/15/2007

6/12/2008
Pollution Report (POLREP) # 11

Site Description

The Barite Hill/Nevada Goldfields site is located approximately 3 miles south of McCormick, South Carolina between US 378 and US 221 on the northern side of Road 30 in McCormick County, South Carolina. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site.

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Current Activities

CONSTRUCTION ACTIVITIES

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signs of ongoing metabolism as evidenced by visible carbon dioxide off gasing. Analytical results indicate that sufficient concentrations of soluble total organic carbon (TOC) has been provided and remains in the water column to drive complete metal reduction of the existing dissolved metals and additionally a significant portion of the reducible sediments. In addition ferric, the acid producing variety of iron is non-detect and the remaining iron exists in the ferrous state as bacteria continue to reduce and convert the remaining iron to FeS (iron monosulfide) and FeCO3 (iron carbonate) which is being formed as a dense, non-reversible sediment at the bottom of the former Acid Pit. The pH is maintaining an approx average of 5.5. Please see the Interim Pit Lake Treatment Report in the documents section of this website for further detail. https://www.epaosc.net/sites/2768/files/interim%20report%20on%20barite%20hill%20neutralization%20and%20treatment.doc

- Additional evidence of improving water quality has been observed with the arrival of 2 adult turtles, numerous frogs in the receiving seep creek and an increasing abundance of dragonflies and water striders in and around the former Acid Pit.
- Excavation/transport and grading of site sourced clay to the former north and south waste rock piles continues according to the Bureau of Reclamation (BOR) design. Details of this design can be found in the documents section of this webpage.
- Approximately 1500 tons of rip rap have been delivered to the site for use in cap erosion control feature construction with approx 30 percent of the cap-former acid pit shoreline interface armored.
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- SCDHEC is currently working on submitting suitable vegetative alternatives for the cap.

INVESTIGATION/EVALUATION ACTIVITIES IN SUPPORT OF BOR DESIGN

- BOR Spillway design calculations are 100% complete.
- Satellite recorded mini-trolls continue to operate in the Acid Pit at 5' and 40' measuring parameters such as DO, ORP, pH, temperature and turbidity.
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- EPA CIC was on site 6-11-08 to update fact sheets and conduct preliminary public outreach concerning potential for the local museum to receive mineral specimens of interest.
- EPA OSC is in coordinated efforts with R4 Remedial Program to construct monitoring systems for the functioning of the cap. BOR is acting as liason for this endeavor.

All POLREPs for this site

Barite Hill Nevada Goldfields

McCormick , SC - EPA Region IV
POLREP #12 - Cap Progresses/Toe Construction/Water Quality Improves

Printer Friendly Version

On-Scene Coordinator - Leo Francendese
Time-Critical - Removal Action
Start Date: 10/15/2007

7/12/2008
Pollution Report (POLREP) # 12

Site Description

The Barite Hill/Nevada Goldfields site is located approximately 3 miles south of McCormick, South Carolina between US 378 and US 221 on the northern side of Road 30 in McCormick County, South Carolina. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site.

The site is located along a topographic high ridge area forming the headwaters of an unnamed tributary to Hawes Creek. The topography of the area consists of rolling hills with ridgelines at an elevation of about 500 feet. Within the site, the ridgeline comprising the site has a high point of about 510 feet and an average elevation of approximately 480 feet.

The permitted mine site totals 795.2 acres. Of this total, 659.7 acres are designated as buffer area (areas not disturbed beyond the pre-mine natural state); therefore the maximum disturbance area is 135.5 acres.

The facility used a cyanide solution in a heap leach process to extract gold from ore. There are 7 processing ponds and 1 sediment pond onsite. Three large, multi-acre waste rock piles exist in varying condition. Each waste rock pile has the potential for producing acid. Storm water run on and runoff are not controlled at the site. The Main Pit ("Acid Pit") from the mining operations remains. The 10 acre Acid Pit contains approximately 60,000,000 gallons of water with an average pH of 2 ~ 2.2 and a high dissolved metal content. Seeps from the Acid Pit containing acidic water with high dissolved metal content are being released to the northern unnamed tributaries of Hawes Creek which borders the pit at a rate of approximately 5 gpm.

As per a referral by the State of South Carolina, the EPA Region 4 Removal Program conducted a Removal Site Evaluation (RSE) according to the National Contingency Plan (NCP). During the RSE of March 2007, the OSC conducted an emergency response whose scope included the demolition of a furnace building and onsite neutralization of over 2000 lbs of varying strength acids and bases. As of 9/19/07, the Agency has approved an Action Memorandum to conduct a removal action. The removal action commenced on 10/15/07 and includes a Bureau of Reclamation designed cap for the 250,000 CYS of acid producing waste rock adjacent to the Acid Pit, Acid Pit neutralization and cyanide deactivation in one of the onsite process ponds.

The project is expected to take about 12 to 16 months to complete and is projected to cost approximately 4,000,000 dollars. Details concerning this action can be found in both the documents section and Pollution Reports (POLREPS) which are updated on a periodic basis.

Current Activities

Cap Construction Progress (North and South)

- 90 percent cap saprolite layer graded

- 90 percent grading of cap clay layer
- 75 percent cap toe construction
- 0 percent cap liner laid
- 0 percent cap topsoil blending/placement
- 0 percent cap seeding
- 40 percent irrigation system
- 75 percent watershed drainage completed
- 40 percent spillway constructed

- The Former Acid Pit Lake water quality continues to improve as documented by the referenced table found in the documents section. https://www.epaosc.net/sites/2768/files/barite%20hill%20june%202008%20comparative%20table%20for%20the%20pit%20lake.pdf. In addition please refer to the attached webpage link for the complete SCDHEC 61-68 Water Classifications and Standards. http://www.epa.gov/waterscience/standards/wqslibrary/sc/sc_4_wqs.pdf
- In addition, ORP continues to demonstrate negative conditions conducive to SRB activity as metal sulfide capture continues. Daily measurements can be found via http://www.isi-data.com/Default.aspx login jharrington password jharrington

Planned Removal Actions

- 40 ml HDPE textured liner will be laid during the week of July 28th according to the BOR recommended design.
- Georgia Pacific continues to provide organic base for the topsoil blend. Beginning the week of July 21st, the organic base will be shredded and mixed with onsite saprolite to create the recommended sandy loam topsoil.
- SCDHEC has recommended a blend of fescue and rye for the expected late September seeding with potential for a springtime inoculated clover seeding event.
- Subcontractor has been selected for the installation of the irrigation well pump.

Next Steps

- Region 4 Office of Regional Counsel, HQ Attorneys that are experts on Good Samaritan orders from OECA's Office of Site Remediation Enforcement and SCDHEC continue to pursue negotiations for an arrangement to provide post removal removal site controls with a publically held private mining/reclamation firm.
- Coordination with the Remedial Program continues for post removal cap monitoring.

July 2008 Comparative Table for the Barite Hill Pit Lake

Comparison of Barite Hill untreated lake water (October 2007) and interim treated lake water (June 10, 2008) to Priority Pollutant Criteria provided under SCDHEC Regulation 61-68 (adopted June 2004) and adjusted for the appropriate water hardness of 400 mg/L. Analyses that exceed one but not all of the applicable criteria are highlighted in yellow. Analyses that exceed all criteria are highlighted in red.

	Human Health	SCDHEC WQC under R 61-68		October 2007	June 2008
	MCL	CMC	CCC	BHB-005	BHR-5-001
Potentially Applicable Standards (priority pollutants)				Pit Water Untreated	Pit water treated (Dissolved)
Antimony	0.006	NSA	NSA	0.02	0.006
Arsenic	0.01	0.34	0.15	0.968	0.010
Cadmium	0.005	0.008	0.0026	1.57	0.005
Chromium	0.1	0.57	0.074	0.141	0.010
Copper	1	0.057	0.039	267	0.010
Lead	0.015	0.32	0.005	0.161	0.010
Nickel	0.61	1.071	0.167	0.404	0.163
Selenium	0.05	NSA	0.005	0.23	0.022
Zinc	5	0.339	0.339	40.2	1.440

Criterion continuous concentration (CCC) means the highest instream concentration of a toxicant or an effluent to which the organisms can be exposed to protect against chronic (long-term) effects. EPA derives chronic criteria from longer term (often greater than 28 days) tests that measure survival, growth, reproduction, and in some cases bioconcentration.

Criterion maximum concentration (CMC) means the highest instream concentration of a toxicant or an effluent to which the organisms can be exposed for a brief period of time without causing an acute effect. EPA derives acute criteria from 48 to 96 hour tests of lethality or immobilization.

In addition to the above slight exceedances that remain for priority pollutants (selenium and zinc) for the interim treated pit lake water, aluminum, iron, manganese also exceed one or more secondary water quality criteria. Iron and manganese are dropping out and are anticipated to continue to drop out to low concentrations (through geochemical precipitation) when the previously added soluble organic

carbon is depleted through redox reactions with sediments containing iron hydroxides and other metal hydroxides.

	Human Health	SCDHEC WQC under R 61-68		October 2007	June 2008
	Secondary MCL	CMC	CCC	BHB-005	BHR-5-001
Potentially Applicable Standards (non-priority pollutants)				Pit Water Untreated	Pit water treated (Dissolved)
Aluminum	0.2	0.75	0.087	244	0.347
Iron	0.3		1.0	1150	309
Manganese	0.05 – 0.1			13.6	10.6